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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,988	11/12/2003	Daniel J. Wilkinson	60680-1765	2987

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EXAMINER

PATEL, VISHAL A

ART UNIT

PAPER NUMBER

3676

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/605,988

Applicant(s)

WILKINSON, DANIEL J.

Examiner

Vishal Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/12/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: “46” in figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: Paragraph 0014, lines 12-13, “42” should be replaced by 46.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

How can the piston ring assembly have a ring groove of a piston? The preamble of claim 2 is inconsistent to what is claimed.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Braendel (US. 3,000,678).

Braendel discloses a piston ring assembly for retention in a ring groove of a piston of an internal combustion engine. The piston ring assembly comprising an upper ring (20) for bearing against an upper surface of the piston ring groove, a lower ring (22) for bearing against a lower surface of the piston ring groove, a first shoulder recess (recess that retains the expander 24) about an inner periphery of the upper ring, a second shoulder recess (recess that retains the expander 24) about an inner periphery of the lower ring, a generally sinusoidal expander (24) having alternating apexes (where 24a contact 20 and 24b contact 22), the generally sinusoidal expander received in a cavity formed by the first shoulder recess and the second shoulder recess and radial compression of the upper and lower rings induces axial expansion of the generally sinusoidal expander (this is the case since the upper ring, the lower ring and the expander have

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the same structure as claimed by applicants) for urging the upper and lower rings against the upper and lower surface of the piston groove. The piston ring assembly is positioned within a ring groove (14) of a piston such that the axial expansion of the expander urges the upper ring against the upper surface of the ring groove and the lower ring against a lower surface of the ring groove (this is the case since the expander, the rings have the same structure as claimed by the applicant). The upper and lower rings have a lip (lip that contacts 12). The upper ring has a first ring gap and the lower ring has a second ring gap (the rings 20 and 22 are split rings).

7. Claims 1-2, 4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Landon (US. 2,323,815).

Landon discloses a piston ring assembly comprising an upper ring (1), a lower ring (2), an expander (3) positioned between the upper ring and the lower ring, the expander including apexes that contact the upper and lower rings, radial compression of the upper and lower rings induces axial expansion of the expander (this is the case since all structural limitation are disclosed by Landon). The piston ring assembly is positioned within a ring groove (ring groove where the rings and expander lie in) of a piston such that the axial expansion of the expander urges the upper ring against an upper surface of the ring groove and the lower ring against a lower surface of the ring groove (this is the case since all structural limitation are disclosed by Landon). The expander is generally sinusoidal in shape and includes two ends defining an expander gap such that radial compression of the upper and lower rings mates the two ends thereby closing the expander gap and the mated two ends form a generally W-shaped configuration (this is the case since the gap is formed by a slit in one of the apexes, figure 1). The apexes of the expander are generally flat and are supported by two adjacent leg members

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such that an angle defined by the adjacent leg members have a value. The upper ring includes a first ring gap and the lower ring includes a second ring gap (figure 1).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Landon in view of Hellman (US. 1,836,027).

Landon discloses the invention substantially as claimed above but fails to disclose that one of the upper and lower rings include plurality of projection to define a plurality of vents. Hellman discloses one of upper and lower rings include plurality of projections to define a plurality of vents (vents formed by projections forming grooves 4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the upper and lower rings of Landon to have plurality of projections as taught by Hellman, to provide proper drainage of oil (page 1, column 2, line 59 of Hellman).

10. Claims 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braendel in view of Landon.

Braendel discloses the invention substantially as claimed above but fails to disclose that the apexes of the expander are generally flat, the expander includes two ends defining an expander gap such that radial compression of the upper and lower rings mates the two ends, thereby closing the expander gap and the mated two ends form a generally W-shaped

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configuration. Landon discloses a piston ring assembly having an upper ring (1), lower ring (2), expander (3) and each have a ring gap, the expander having apexes that are flat and the ring gap of the expander is formed on the apex (this forms a W, as seen in figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the upper ring, lower ring and expander of Braendel to have a ring gaps as taught by Landon, to provide proper radial expansion and contraction of the expander and to minimize wear (page 1, column 2, line 43 of Landon)

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Braendel and Hellman as applied to claim 10 above, and further in view of Hellman.

Braendel and Landon disclose the invention substantially as claimed above but fail to disclose that one of the upper and lower rings include plurality of projection to define a plurality of vents. Hellman discloses one of upper and lower rings include plurality of projections to define a plurality of vents (vents formed by projections forming grooves 4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the upper and lower rings of Braendel and Landon to have plurality of projections as taught by Hellman, to provide proper drainage of oil (page 1, column 2, line 59 of Hellman).

12. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Landon.

Landon discloses the claimed invention except that the angle is 16 degrees. Discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Without the showing of some unexpected result. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a matter of choice in design. It would have been obvious to one having

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ordinary skill in the art at the time the invention was made to have the angle to be about 16 degrees as a matter of design choice.

13. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Braendel, Landon and Hellman.

Braendel, Landon and Hellman disclose the claimed invention except that the angle is 16 degrees. Discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Without the showing of some unexpected result. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a matter of choice in design. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the angle to be about 16 degrees as a matter of design choice.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shannon, Crawford et al, Heslewood et al, Knoebel, Ishida, Phillips, Arai and Collings.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vishal Patel whose telephone number is (571) 272-7060. The examiner can normally be reached on Monday through Friday from 7:30 PM to 4:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford, can be reached on (571) 272-7049.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2168. Technology Center 3600 Customer Service is available at 703-308-1113. General Customer Service numbers are at 800-786-9199 or 703-308-9000. Fax Customer Service is available at 703-872-9325.

Any response to this action should be mailed to:

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Commissioner of Patents and Trademarks
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or faxed to: 703-872-9326, for formal communications for entry before Final action: or,
703-872-9327, for formal communications for entry after Final action.

Hand-delivered responses should be brought to Crystal Park Five, 2451 Crystal Drive,
Arlington, Virginia, Seventh Floor (Receptionist suite adjacent to the elevator lobby).

VP
April 27, 2005

A handwritten signature in black ink, appearing to read "Vishal Patel".

Vishal Patel
Patent Examiner
Tech. Center 3600